GEOTECHNICAL ENGINEERING SERVICES
PROPOSED WALGREENS
ALLEN AND WASHINGTON AVENUES
PORTLAND, MAINE

07-1053.3 **February 6, 2009**

PREPARED FOR

The Richmond Company, Inc.
Attention: David Latulippe
35 Primrose Lane
Freeport, Maine 04032

PREPARED BY

S.W.COLE ENGINEERING, INC.

Attention: Paul F. Kohler, P. E.
286 Portland Road
Gray, Maine 04039-9586
207-657-2866

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07-1053.3

February 6, 2009

The Richmond Co., Inc.
Attention: David Latulippe
35 Primrose Lane
Freeport, ME 04032

Subject: Geotechnical Engineering Services
Proposed Walgreens
Allen and Washington Avenues
Portland, Maine

Dear Mr. Latulippe:

In accordance with our Agreement dated November 14, 2008, we have made a subsurface investigation for the proposed retail project on the northwest corner of the intersection of Allen and Washington Avenues in Portland, Maine. This report summarizes our findings and recommendations, and its contents are subject to the limitations set forth in Attachment A.

1.0 INTRODUCTION

1.1 Scope of Work

The purpose of the investigation was to explore the subsurface conditions and provide recommendations relative to foundations, earthwork and pavement associated with the proposed construction. The investigation included eleven test borings, laboratory testing and a geotechnical evaluation of the subsurface findings as they relate to the proposed construction.

1.2 Proposed Construction

Based on information you provided, we understand development plans call for construction of a on-grade, single-story, high-bay, masonry structure on the northwesterly corner of the intersection of Allen Avenue and Washington Avenue. We understand the new structure will be on the order of 110-feet by 140-feet in plan

dimensions with a slab-on-grade floor and spread footing foundation system. Based on information provided by the Richmond Company, we understand that interior column loads may approach 80-kips and exterior wall loads may approach 4-kips per lineal foot for load bearing walls and 2.6-kips per lineal foot for non-load bearing walls.

Based on information provided by Gorrill-Palmer (project civil engineer), the site is relatively flat at about elevation 81-feet to 83-feet (project datum). The proposed building is planned at a finish floor elevation of 82.66-feet. Paved areas are proposed around the structure with access drives from both Washington Avenue and Allen Avenue. Concrete pavement is proposed on the northerly side of the structure; concrete sidewalks are proposed along the easterly and southerly sides, and a canopy drive-through is proposed on the westerly side of the structure.

Proposed and existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

2.0 EXPLORATION AND TESTING

2.1 Exploration

Eleven test borings (B-1 through B-11) were made at the site on December 11 and 15, 2008, by Great Works Test Boring, Inc. of Rollinsford, New Hampshire. The test boring locations were selected and established in the field by S. W. COLE ENGINEERING, INC. based on a site plan provided by Gorrill-Palmer (Project Civil Engineer) dated December 2007. Potential locations for explorations were limited in some areas due to existing structures and either known or suspected subsurface utilities. The approximate test boring locations are shown on the "Exploration Location Plan" attached as Sheet 1. Logs of the test borings based on our observations and testing of samples are attached as Sheets 2 through 12. A key to the notes and symbols used on the logs is attached as Sheet 13. The elevations noted on the test boring logs are based on topographic information shown on Sheet 1.

2.2 Laboratory Testing

Soil samples recovered from the test borings were visually classified in our laboratory. Laboratory testing was performed on selected samples recovered from the test borings. Moisture content test results are noted on the test boring logs. The results of three grain size analyses are presented graphically on Sheets 14 through 16. A one-

dimensional consolidation test was performed on a sample of gray silty clay obtained at boring B-5. The results are attached as Sheet 17.

As part of our environmental site assessment, soil samples obtained from the test borings were also screened for potential hydrocarbons using a Photo Ionization Detector (PID). Please refer to our Phase II Environmental Site Assessment, (SWCE# 07-1053.1) dated January 2, 2009 for environmental information and PID results.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Site and Surficial Conditions

The site of the proposed retail structure is located on the northwest quadrant of the intersection of Allen and Washington Avenues. The site is currently occupied by four structures; two are 1-story masonry block buildings, one is a 1-story wood-framed building with a basement level and one is a high bay masonry block and stone veneer structure. We understand the structures will be razed or removed in favor of the new construction. The remaining portions of the site are open and paved or landscaped. This site is relatively flat at about elevation 81-feet to 83-feet.

Our records research indicates that several underground fuel storage tanks were reportedly removed from the site (see SWCE Environmental Report, SWCE#07-1053).

3.2 Subsurface Soils

Borings B-1 through B-7 were made in the proposed building area, while borings B-8 through B-11 were made in the proposed paved areas. Borings B-1 through B-7 were extended to refusal surfaces, while borings B-8 through B-11 were made to depths of 7 to 9-feet. In general, below the asphalt pavement, the explorations encountered gravelly silty sand (pavement base aggregate) overlying silty, clayey fill or silty sand fill (miscellaneous fill) overlying stiff to very stiff native brown silty clay which transitions to softer gray silty clay overlying glacial till mantling probable bedrock. The principal strata encountered are summarized below; not all the strata was encountered at each of the boring locations.

Fill: The test borings generally encountered a base aggregate fill directly beneath the asphalt pavement consisting of gravelly sand with some silt. This fill layer appears to vary from about 6-inches to 8-inches in thickness. Below the base aggregate fill, the

borings encountered medium dense or medium stiff, brown and gray clayey silt or silty sand with some gravel (miscellaneous fill). This fill, where encountered, extended to depths on the order of 1.5-feet to 7-feet below the ground surface at the explorations.

Brown Silty Clay: Below the fill soils, the borings encountered native, stiff to very stiff, brown silty clay extending to depths of about 9-feet to 12-feet below the existing ground surface.

Gray Silty Clay: Below the brown silty clay, borings B-1 through B-7 generally encountered a deposit of gray silty clay of medium consistency. This strata transitions from the brown silty clay and extends to depths varying from about 15-feet to 20-feet below the existing ground surface.

Glacial Till: Below the gray silty clay, borings B-1 through B-7 encountered a thin strata of gray silty sand, some gravel (glacial till). This strata varied from about 1-foot to 4-feet in thickness and was generally medium-dense.

Refusal Surfaces: Borings B-1 through B-7 were extended to refusal surfaces. Refusal surfaces (probable bedrock) were encountered at depths varying from about 15-feet to 25-feet below the existing ground surface.

For a more detailed description of the explorations, please refer to the attached boring logs.

3.3 Groundwater

In general, the soils were wet to saturated below about 8-feet from the ground surface. The soil samples were generally damp to moist above these depths. It should be noted that due to the short time period of drilling, accurate groundwater information could not be obtained at the borings. Long term groundwater information is not available; however, groundwater likely becomes perched on top of the relatively impervious silty clay strata beneath the site. Groundwater should be expected to fluctuate seasonally and during periods of heavy precipitation and/or snow melt.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings and our understanding of the proposed construction, it is our opinion that the existing miscellaneous fill underlying the site is not suitable for support of new foundations or slab areas. Thus, all miscellaneous fill needs to be removed from beneath the entire building footprint, as well as adjacent sidewalks and entrance slabs. It is our opinion that the proposed structure can be supported on spread footings founded on a 12-inch minimum thickness of compacted crushed stone fully wrapped with a woven geotextile fabric (such as Mirafi 500x) overlying native, stiff, brown silty clay.

The existing asphalt pavement section does not appear to be adequate for Walgreens standards. Thus, proposed paved areas will need to be cut to bottom of proposed sub-base elevation and then densified prior to placing the sub-base aggregate.

Since this is a developed urban site, it should be anticipated that the miscellaneous fill will vary in soil type, thickness, quality, moisture content and compaction, etc. Fill will likely be deeper near structures, particularly with basements and where subsurface tanks once existed. These factors must be considered in planning and budgeting of the project.

4.2 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. As much pavement and vegetation as possible should remain undisturbed adjacent to the construction site to lessen the potential for erosion. We recommend all pavement, topsoil, subsurface structures including existing foundations and slabs, septic systems (if any), underground utilities and any soft, wet and unstable soils be removed from areas of construction. Excavations to remove fill extending below bottom of footing elevation should continue laterally 1-foot for every 1-foot of over-excavation (1V to 1H bearing splay).

Below slab areas, where excavation of fill and unsuitable soil extends below proposed subgrade, additional compacted Structural Fill can be used overlying geotextile fabric (where needed).

Paved area subgrades should be proof-rolled with a 10-ton vibratory roller-compactor prior to placing new sub-base aggregate. Use of static or dynamic compaction will be dependent upon subgrade moisture conditions.

S. W. COLE ENGINEERING, INC. should be on site during excavation and proof-rolling work to observe subgrade suitability. Groundwater will need to be controlled to at least 12-inches below subgrades during construction. The contractor will need to be prepared to place a woven geotextile fabric (such as Mirafi 500x) on subgrades prior to placing new fill in areas where subgrades are wet and easily disturbed.

4.3 Foundation Design

The proposed structure can derive support from spread footings founded on a 12-inch thick layer of compacted ¾-inch crushed stone fully wrapped with geotextile fabric (such as Mirafi 500x) overlying stiff, stable native stiff brown silty clay.

The design freezing index for the Portland, Maine area is approximately 1250 Fahrenheit degree-days. Thus, exterior perimeter footings will need to be cast at least 4.5-feet below exterior finish grade to provide frost protection. For footings, bearing on properly prepared subgrades, we recommend the following geotechnical parameters for design of spread footings:

- Allowable Soil Bearing Pressure — 2.5 ksf
- Seismic Soil Site Class (IBC 2006 N-Value Method) — D
- Design Frost Depth — 4.5 feet
- Base Friction Factor — 0.4 (Crushed Stone)
- Passive Lateral Earth Pressure Coefficient (K_p) — 3.0 (Structural Fill)
- Active Lateral Earth Pressure Coefficient (K_a) — 0.3 (Structural Fill)
- At Rest Lateral Earth Pressure Coefficient (K_o) — 0.5 (Structural Fill)
- Total Unit Weight of Backfill (γ_t) — 130 pcf (Structural Fill)
- Internal Friction Angle (ϕ) — 30 degrees (Structural Fill)

Wall footings should be at least 24-inches wide and column footings should be at least 36 inches in their smallest lateral dimension.

4.4 Settlement Analysis

We have made an analysis of the post-construction consolidation of the underlying compressible gray silty clay beneath the proposed structure. Our analysis has been based upon the following:

1. The subsurface information obtained at the borings
2. The existing grading information shown on Sheet 1
3. A finish floor elevation of 82.66-feet (project datum)
4. The consolidation information from Boring B-5, Sample 1U
5. Structural loading information as stated herein

Based on the above, we estimate that post-construction settlement due to consolidation of the gray silty clay may approach 1-inch total and ¾-inch differential. Further, we estimate that differential settlement between the north and south portions of the structure will be on the order of 0.003 in/in.

4.5 Excavation Work

Excavation work will encounter pavement, landscaped areas, existing foundations, utilities and miscellaneous fill soils overlying native silty clay. It should be noted that the site is an urban developed property occupied by several structures and may have been occupied by other structures, subsurface structures and underground tanks.

Thus, relic foundations, miscellaneous and unsuitable fills, tanks or leach beds may be encountered. S. W. COLE ENGINEERING, INC. should be on site during excavation work to observe excavations and subgrade conditions. We recommend that a smooth-edged bucket be utilized for excavation to subgrade.

Based on the subsurface findings, perched groundwater and wet to saturated soils will likely be encountered near subgrade elevation in the foundation and utility excavations. The contractor should be prepared to dewater excavations, as needed. Sumping and pumping dewatering techniques should be planned to adequately control groundwater to at least 1-foot below subgrade elevation. Controlling the water levels to at least 1-foot below subgrade elevations will help stabilize the subgrade and provide a more suitable working surface during construction.

Precipitation and freezing/thawing will make the soils difficult to work. Thus, the subgrade should not be exposed any longer than necessary. Should the subgrade become loose, soft or difficult to work, we recommend that the unsuitable soils be removed and replaced with additional crushed stone.

Excavations must be properly shored and/or sloped to prevent sloughing and caving of the sidewalls during construction. Temporary, unsupported soil excavations should be sloped back to 1.5H:1V or flatter. All excavations should be consistent with OSHA trenching regulations.

4.6 Slab-on-Grade Floors

Slab-on-grade floors in heated areas may be designed using a subgrade reaction modulus of 200 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted 2-inch minus Structural Fill placed on a properly prepared subgrade. Additional fill needed to achieve slab subgrade should consist of additional Structural Fill (see conceptual foundations detail attached as Sheet 18).

We recommend that control joints be installed within the floor slab to accommodate shrinkage in the concrete as it cures. In general, construction joints are typically installed at 10-foot to 15-foot spacing, but design spacing should be determined by the structural engineer with consideration to slab thickness. A vapor retarder should underlie floor slabs covered with moisture sensitive flooring to limit the upward migration of moisture vapors. The vapor retarder should have a permeance that is less than the floor covering being applied on the slab. We recommend consulting flooring manufacturers relative to selection and installation of acceptable vapor retarder systems for use with their products.

Floor slabs should be wet-cured for a period of least 7 days after casting as a measure to reduce the potential for curling of the concrete and excessive drying/shrinkage. We recommend that consideration be given to using curing paper installed over the cast-in-place concrete and that the curing paper remain in place as long as possible to improve the quality of the completed floor. In lieu of curing paper, a curing compound may be utilized; however, care must be taken to prevent scuffing of the compound from the floor during the curing period.

4.7 Backfill and Compaction Requirements

Although a wide range of soil materials can be used successfully, it has been our experience that granular soils with good drainage characteristics (Structural Fill) provide significant advantages, particularly in wet conditions and during cold weather construction. The fills and native soils at the site are frost susceptible and not suitable for foundation backfill or subgrade fill within the proposed building area or as backfill below sidewalks, entrances and concrete pavements.

Structural Fill: Backfill below the buildings slab, adjacent to building foundation walls (interior and exterior sides), below sidewalks and entrances, as well as adjacent to exterior foundations such as canopy foundations, bollards and light pole bases should be a clean, 2-inch minus aggregate material meeting the Structural Fill gradation requirements.

Structural Fill	
Sieve Size	**Percent Finer by Weight**
2 inch	100
1/4 inch	25 to 90
#40	0 to 30
#200	0 to 5

Crushed Stone: Crushed Stone used below footings and as foundation drainage aggregate should meet the gradation requirements of Maine DOT (MDOT) Standard Specifications 703.22 "Underdrain Backfill Type C".

MDOT 703.22 Underdrain Backfill Material Type C	
Sieve Size	**Percent Finer by Weight**
1 inch	100
¾ inch	90-100
⅜ inch	0-75
#4	0-25
#10	0-5

Fill and backfill should be placed in horizontal lifts and be compacted. Lift thickness should be such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Fill placed below building, sidewalk and

paved areas should be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted to 100 percent of its maximum dry rodded unit weight as determined by ASTM C-29.

4.8 Entrance Slabs, Sidewalks and Exterior Slabs

The existing site soils are susceptible to frost heaving. Entrances and sidewalks should be designed to reduce the effects of frost action. We recommend that excavation beneath entrances and sidewalks abutting the building continue to at least 4.5-feet below finish grade. The entire length and width of entrance slabs and adjacent sidewalk areas should be underlain with compacted Structural Fill to a depth of at least 4.5-feet below finish grade. A gradual transition (3H:1V) of the Structural Fill thickness should be provided from the 4.5-foot depth up to the bottom of the pavement subbase material at adjacent paved areas. This transition will reduce the potential for abrupt differential movement due to frost action (see detail on Sheet 18).

4.9 Foundation Drainage

We recommend that a perimeter foundation drainage system be provided for the structure. Foundation drains should be installed within the 12-inch minimum thick layer of geotextile fabric-wrapped crushed stone proposed below the perimeter footings placed and situated at least 12-inches outside the outside edge of perimeter footings. Rigid, 4-inch diameter SDR-35 foundation drainpipes should be utilized. The foundation drains should have a positive gravity outlet. Exterior foundation backfill should be sealed with a surficial layer of clayey or loamy soil in areas that are not to be paved or occupied by entrance slabs. This is to reduce direct surface water infiltration into the backfill. Ideally, surface grades should be sloped away from the building for positive surface water drainage. Conceptual underdrain details are shown on Sheet 18.

4.10 Pavements

4.10.1 Bituminous Asphalt Pavement

We understand that the Walgreens typical specification requires that the asphalt pavement be underlain with either 6-inches or 8-inches (light duty/heavy duty) of compacted base overlying a well-drained subgrade soil. Considering our experience on similar projects in this area and considering the site soils encountered and design freezing index, we recommend a thicker pavement section than required by the retailer.

We anticipate that the paved drive and parking areas will be subjected primarily to passenger car traffic with occasional delivery truck traffic. Considering the site soils and the proposed usage, we offer the following pavement section for your consideration. Materials are based on Maine Department of Transportation specifications.

FLEXIBLE PAVEMENT	
9.5 mm Superpave 703.09 (50 gyration design)	1.25 inches
19.0 mm Superpave 703.09 (50 gyration design)	2.25 inches
MDOT Crushed Aggregate Base 703.06 Type A	6 inches
MDOT Aggregate Subbase 703.06 Type D	12 inches
NOTE: Assumes a seasonally adjusted CBR value of 7	

The bituminous pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. A tack coat between successive lifts is recommended. The base and subbase materials should be compacted to at least 95 percent of their maximum dry densities as determined by ASTM D-1557. If fill is needed below the Aggregate Type D subbase material, we recommend that either additional Type D subbase or Structural Fill be utilized. We recommend that all fill placed below the subbase material be compacted to at least 95 percent of ASTM D-1557.

4.10.2 Concrete Pavement

We recommend that the area beneath all concrete pavement be excavated to at least 4.5-feet below finish grade. The area should be backfilled with MDOT Type D Sub-base, compacted to 95 percent of ASTM D-1557 up to the bottom of the Type A aggregate base material. We recommend the following pavement section:

CONCRETE PAVEMENTS		
Pavement Layer	**Standard Duty**	**Heavy Duty**
Concrete Pavement (5,000 psi compressive, 550 psi flexural, 1½" aggregate with 5±1% air)	5 inches	8 inches
Maine DOT Crushed Aggregate Base 703.06 Type A, (Standard Specifications for Highways and Bridges, 2002, Pages 7-17)	6 inches	9 inches
NOTE: Assumes a seasonally adjusted CBR value of 7		

We recommend that control joints be provided in the concrete pavement surface to control random cracking. We recommend control joint spacing of not more than 12-feet both longitudinally and horizontally. The control joints may consist of construction breaks or sawed joints. The sawed joints should be installed as early as practicable after placement of the concrete to avoid random cracking. We recommend that dowels be provided at construction joints to help load transfer.

S. W. COLE ENGINEERING, INC. should be on-site to observe all paved area subgrades prior to placing new fills. Any soft or wet areas, or areas exhibiting unsuitable, unstable soil, will need to be removed and replaced with additional Sub-base material or Structural Fill. Additionally, a geotextile fabric (such as Mirafi 500x) may be needed on paved area subgrades in areas where the subgrade is wet prior to placing and compacting new fill.

Consideration should be given to the development of both surface and subgrade drainage. The paved areas should be graded to promote surface drainage away from the building area and design should consider sloping of the subgrade to enhance drainage.

Where new utilities are proposed beneath the new paved areas, backfilling of the utility trenches should be made in a manner to reduce differential frost action. Utility pipes should be bedded and surrounded using materials consistent with the manufacturer's specifications. Above the utility bedding, backfill in trenches should be material similar to that in the trench sidewalls to lessen the potential for differential frost action between the trench and the adjacent materials. The backfill materials should be placed in horizontal lifts not exceeding 12-inches in thickness and should be compacted to a density similar to that of the material in the adjacent trench sidewalls.

Frost penetration can be on the order of 4.5-feet or more in this area of the state. In the absence of full depth excavation of frost susceptible soils or use of insulation, frost will penetrate into the subgrade and some frost heaving and pavement distress must be anticipated.

4.11 Basement Area Backfill / Re-Use of On-Site Soils

Based on the findings at some of the explorations, it appears that some of the existing pavement base aggregate and underlying silty sand with some gravel fill may be

suitable for re-use to backfill the basement excavation left after demolition of the 1-story, wood-framed structure located along Allen Avenue, where new paved area is planned. The on-site silty, clayey soils are not suitable for backfill at the site. We recommend placing a geotextile fabric (such as Mirafi 500x) on the basement subgrade prior to placing new compacted fill or, alternatively, consideration could be given to leaving the existing basement slab in place and placing the new compacted fill on top of the slab.

4.12 Walgreens Specifications

It should be noted that the backfill and pavement gradations and thicknesses provided herein are based on both our experience with similar projects in this area and our understanding of the intent of the Walgreens requirements and may not necessarily always match the Walgreens specifications. The contractor and project designers will need to review the Walgreens standard specifications carefully, to ensure that the intent of Walgreens specifications are followed. S. W. COLE ENGINEERING, INC. is available to assist the client, design team and contractor in interpreting Walgreens backfill, compaction and pavement sections, as requested.

4.13 Weather Considerations

If foundation construction takes place during fall or winter, foundations and floor slabs must be protected during freezing conditions. Concrete must not be placed on frozen soil and once placed, the soil beneath the structure must be protected from freezing. It should be anticipated that relatively dry or wet conditions might occur at any time during the year. Minimizing construction traffic and excavation activities during wet weather conditions may be required due to the silty nature of the site soils. Moisture "conditioning" of the new site fill will likely be required to achieve compaction.

Site soils are moisture sensitive and subgrades will be susceptible to disturbance during wet conditions. Site work and construction activities should take appropriate measures to protect exposed subgrades.

4.14 Design Review and Construction Testing

It is recommended that the geotechnical engineer be engaged to review the site work and foundation drawings to determine that our recommendations have been appropriately interpreted and implemented.

S. W. COLE ENGINEERING, INC. should be engaged to observe subgrades and to provide observation and testing services during the excavation and foundation phases of the work. This is to observe compliance with the design concepts, specifications and design recommendations and to allow design changes in the event that subsurface conditions are found to differ from those anticipated prior to start of construction. S. W. COLE ENGINEERING, INC is available to provide testing and special inspection services for soils, concrete, masonry, steel, spray-applied fireproofing and asphalt construction materials.

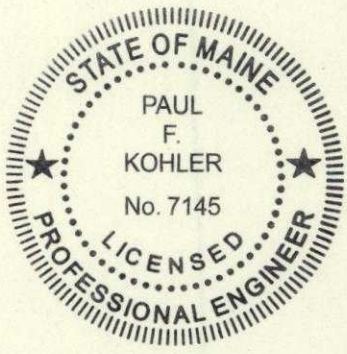
5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you as the design progresses and during the construction phase.

Very truly yours,

S. W. COLE ENGINEERING, INC.

Paul F. Kohler, P. E.
Senior Geotechnical Engineer



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Attachment A
Limitations

This report has been prepared for the exclusive use by The Richmond Company, Inc. for specific application to the Proposed Walgreens on the northwest corner of Allen Avenue and Washington Avenue in Portland, Maine. S. W. COLE ENGINEERING, INC. has endeavored to conduct the work in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

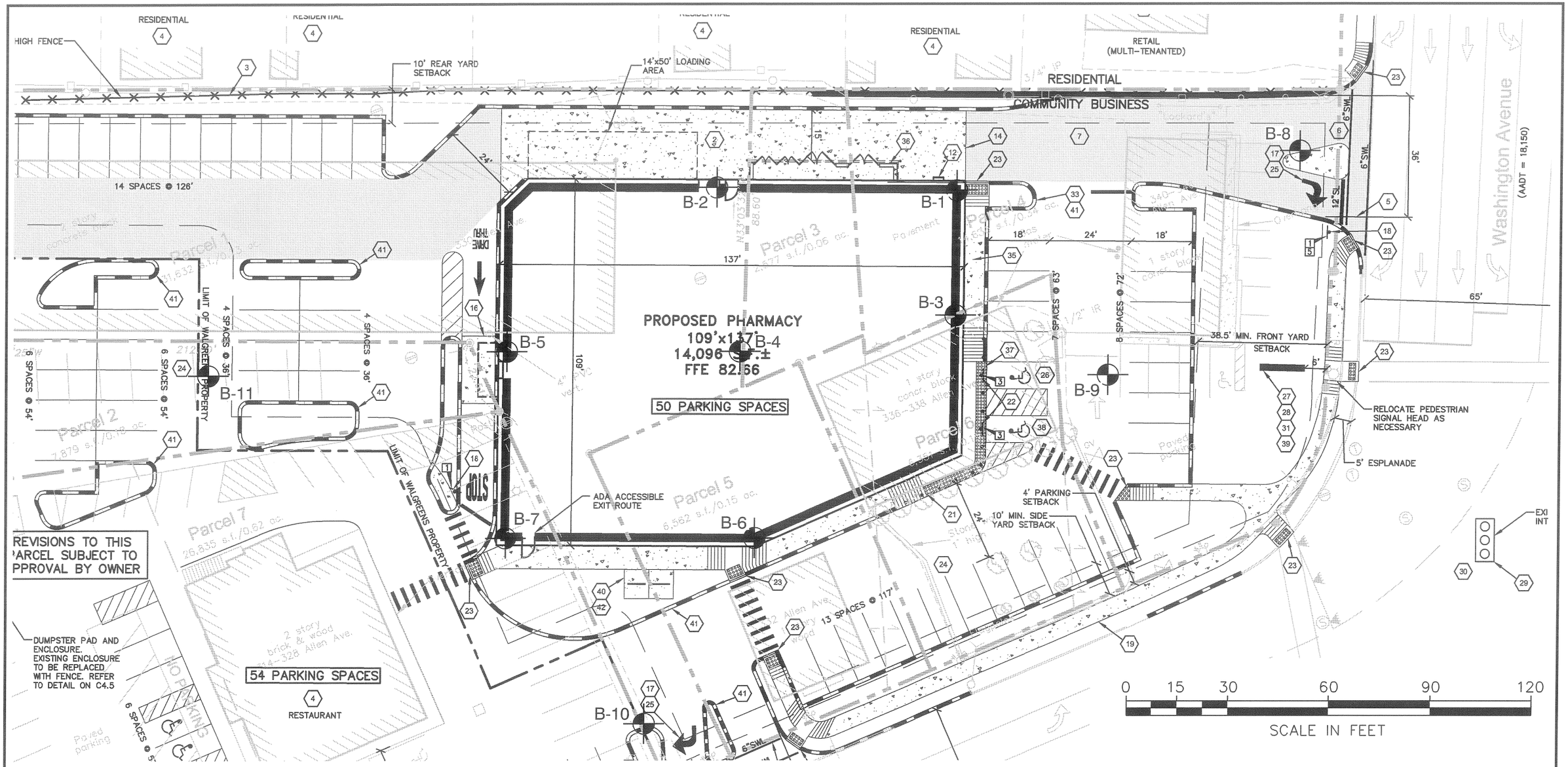
The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S. W. COLE ENGINEERING, INC.'s scope of work has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S. W. COLE ENGINEERING, INC. should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S. W. COLE ENGINEERING, INC.



LEGEND:

APPROXIMATE BORING LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=20' SCALE PLAN OF THE SITE ENTITLED "SITE LAYOUT PLAN", DATED 12/07, PROVIDED BY THE RICHMOND COMPANIES, INC..
2. THE BORINGS WERE LOCATED IN THE FIELD BY TAPED MEASUREMENTS FROM EXISTING SITE FEATURES.
3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S.W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

S.W.COLE ENGINEERING, INC.

THE RICHMOND COMPANY

EXPLORATION LOCATION PLAN

PROPOSED WALGREEN PHARMACY
ALLEN AVENUE AND WASHINGTON AVENUE
PORTLAND, MAINE

Job No.	07-1053.3	Scale	1"=30'
Date :	01/16/09	Sheet	1

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-1
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/11/2008
DATE FINISH: 12/11/2008
ELEVATION: 83' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: JEFFREY LEE

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HW	4" I.D.	300 lbs	16"
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
SOILS APPEAR WET TO SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										BROWN GRAVELLY SAND, SOME SILT (FILL)
	1D	24"	14"	2.0'	3	5	4	5	1.5'	~MEDIUM DENSE~
									3.0'	GRAY SILTY SANDY CLAY, TRACE GRAVEL (FILL)
										BROWN SILTY CLAY
	2D	24"	24"	7.0'	2	6	9	12		~VERY STIFF~ q_p > 9 ksf
										TRANSITIONING TO...
	3D	24"	24"	12.0'	2	3	3	3		...GRAY SILTY CLAY ~MEDIUM~ qp = 1 ksf
									15.0'	
	4D	3"	2"	15.2'	50/3"				15.2'	GRAY SILTY SAND, SOME GRAVEL (TILL)
										REFUSAL @ 15.2'
										PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-1

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-2
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/11/2008
DATE FINISH: 12/11/2008
ELEVATION: 82' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: JEFFREY LEE

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HW	4" I.D.	300 lbs	16"
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
SOILS APPEAR WET TO SATURATED
BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.1'	ASPHALT PAVEMENT
	1D	24"	10"	2.1'	4	3	2	4	0.5'	BROWN GRAVELLY SAND, SOME SILT (FILL)
									3.0'	GRAY SILTY CLAY, TRACE GRAVEL (FILL)
										BROWN SILTY CLAY
	2D	24"	24"	7.0'	5	7	12	15		w = 21.4% q_p > 9 ksf
										~VERY STIFF~
										TRANSITIONING TO...
										...GRAY SILTY CLAY
	3D	24"	24"	12.0'	WOH/24"					w = 31.7% q_p <= 1 ksf
										~MEDIUM~
									15.5'	
	4D	15"	12"	16.3'	WOH	1	50/4"		16.3'	GRAY SILTY SAND (TILL)
										REFUSAL @ 16.3'
										PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-2

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-3
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/11/2008
DATE FINISH: 12/11/2008
ELEVATION: 82.5' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING
DRILLER: JEFFREY LEE

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HW	4" I.D.	300 lbs	16"
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
SOILS APPEAR WET TO SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.1'	ASPHALT PAVEMENT
	1D	24"	7"	2.1'	3	3	3	2		BROWN GRAVELLY SAND, SOME SILT (FILL)
									2.5'	~LOOSE TO MEDIUM DENSE~
									3.0'	BROWN SILTY CLAY, TRACE GRAVEL (FILL)
										BROWN SILTY CLAY
	2D	24"	24"	7.0'	5	8	11	17		w = 19.9% q_p > 9 ksf
										~VERY STIFF~
										TRANSITIONING TO...
										...GRAY SILTY CLAY
	3D	24"	24"	12.0'	WOH	1	1	1		w = 28.5% q_p <= 1 ksf
										~MEDIUM~
	4D	24"	24"	17.0'	WOH/24"					w = 30.0%
										~MEDIUM TO SOFT~
	5D	24"	18"	22.0'	WOH/18"			12	21.5'	
										GRAY SILTY SAND TRACE GRAVEL (TILL)
									24.5'	~MEDIUM DENSE~
										REFUSAL @ 24.5'
										PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-3

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-4
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/11/2008
DATE FINISH: 12/11/2008
ELEVATION: 81.5' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: JEFFREY LEE

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HW	4" I.D.	300 lbs	16"
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
SOILS APPEAR WET TO SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.1'	ASPHALT PAVEMENT
	1D	24"	18"	2.1'	7	12	6	3	1.7'	BROWN GRAVELLY SAND, SOME SILT (FILL)
										BROWN SILTY CLAY
	2D	24"	24"	7.0'	7	8	11	14		q_p = 8 ksf ~VERY STIFF~
	3D	24"	24"	12.0'	1	1	1	1		~MEDIUM~ q_p <= 1 ksf TRANSITIONING TO... ...GRAY SILTY CLAY
	4D	24"	4"	17.0'	WOH/24"					~MEDIUM TO SOFT~
									18.5'	
	5D	24"	14"	22.0'	1	8	9	14		GRAY GRAVELLY SAND, SOME SILT (TILL) ~MEDIUM DENSE~
									23.0'	REFUSAL @ 23.0' PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-4

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-5
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 1/14/2009
DATE FINISH: 1/14/2009
ELEVATION: 81' +/-
SWC REP.: KBG

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : NORTHERN TEST BORING, INC. DRILLER: MIKE NADEAU

	TYPE	SIZE.	HAMMER WT.	HAMMER FALL
CASING:	HW	4" I.D.	300 lbs	16"
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
WATER AT 2.1' [PERCHED WATER TABLE]
SOILS APPEARED WET TO SATURATED AT 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
SSA	1D			0.5'	AUGER FLIGHT SAMPLE				0.1'	1 3/4-INCHES ASPHALT PAVEMENT
TO	2D			1.0'	AUGER FLIGHT SAMPLE				0.7'	LIGHT BROWN GRAVELLY SAND SOME SILT (FILL)
5-FEET	3D	24"	12"	3.0'	5	5	4	6		BROWN GRAVELLY SAND, SOME SILT TO SILTY (FILL)
▼	4D	24"	12"	5.0'	3	6	3	3	4.5'	
10-FEET										BROWN TO GRAY SILTY CLAY
CASING	5D	24"	17"	7.0'	2	3	4	5		w = 26.3% WITH OCCASIONAL FINE SAND SEAMS q_p = 4.0 - 6.0 ksf
	6D	24"	15"	9.0'	3	4	6	5		w = 29.4% ~STIFF~ q_p = 5.0 ksf
▼										
OPEN										
HOLE	7D	24"	10"	12.0'	2	1	2	2	11.5'	w = 39.8% ~MEDIUM~ q_p = 1.0 - 1.5 ksf
	3.5" x 7.5" VANE			12.8'						S_V = .65 / .10 ksf
	3.5" x 7.5" VANE			13.5'						S_V = .55 / .07 ksf GRAY SILTY CLAY
										~MEDIUM~
	1S	24"	22"	16.0'						~MEDIUM TO SOFT~
	3.5" x 7.5" VANE			16.8'						S_V = .51 / .05 ksf w = 44.0 %
	3.5" x 7.5" VANE			17.5'						S_V = .44 / .04 ksf W_L = 35
▼									19.8'	q_u = .92 ksf W_P = 17
	8D	23"	18"	21.9'	3	5	8	50/5"	21.9'	GRAY GRAVELLY SAND SOME SILT (TILL) ~MEDIUM DENSE~
										REFUSAL @ 21.9' PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS: APPROXIMATELY 12-INCHES OF FROST PRESENT AT TIME OF DRILLING

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-5

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-6
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/15/2008
DATE FINISH: 12/15/2008
ELEVATION: 82' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: PETER MICHAUD

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HSA	4 1/4" I.D.		
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
SOILS APPEAR WET TO SATURATED BELOW 10' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.1'	ASPHALT PAVEMENT
										BROWN GRAVELLY SAND, SOME SILT (FILL)
	1D	24"	10"	3.0'	5	5	4	4	2.5'	~MEDIUM DENSE~
										BROWN SILTY CLAY, TRACE GRAVEL (FILL)
									5.0'	~LOOSE TO MEDIUM DENSE~
										BROWN SILTY CLAY
	2D	24"	20"	7.0'	1	1	3	8		w = 19.6% q_p > 9 ksf
										~VERY STIFF~
	3D	24"	24"	12.0'	4	2	2	2		w = 26.2%
										~STIFF TO MEDIUM~
										TRANSITIONING TO...
										...OLIVE TO GRAY SILTY CLAY
	4D	24"	24"	17.0'	1	1	1	1		w = 27.3%
										~MEDIUM~
									19.5'	
	5D	1"	1"	20.1'	50/1"				20.1'	GRAY SILTY SAND, SOME GRAVEL (TILL)
										REFUSAL @ 20.1
										PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-6

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-7
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/15/2008
DATE FINISH: 12/15/2008
ELEVATION: 81.5' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: PETER MICHAUD

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HSA	4 1/4" I.D.		
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.4'	ASPHALT PAVEMENT
	1D	24"	0"	3.0'	10	12	10	5	2.5'	BROWN GRAVELLY SAND, SOME SILT (FILL) ~MEDIUM DENSE~
									5.5'	BROWN SILTY CLAY, SOME SAND ~STIFF~
	2D	12"	10"	6.0'	2	3	30/0"		7.2'	GRAY SILTY SAND, SOME GRAVEL (TILL) ~LOOSE TO MEDIUM DENSE~
										REFUSAL @ 7.2' PROBABLE BEDROCK
										NOTE: SPOON REFUSAL AT 6.0', MOVED 4' EAST, AUGER REFUSAL AT 7.2'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-7

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-8
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/15/2008
DATE FINISH: 12/15/2008
ELEVATION: 84' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: PETER MICHAUD

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HSA	4 1/4" I.D.		
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	ASPHALT PAVEMENT
									2.0'	BROWN GRAVELLY SAND, SOME SILT (FILL)
	1D	24"	19"	3.0'	4	3	3	3		
										BROWN SILTY CLAY
	2D	24"	22"	5.0'	3	7	8	11		~STIFF~
	3D	24"	24"	7.0'	8	10	11	13	7.0'	
										BOTTOM OF EXPLORATION @ 7.0'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-8

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-9
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/15/2008
DATE FINISH: 12/15/2008
ELEVATION: 84' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: PETER MICHAUD

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HSA	4 1/4" I.D.		
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	ASPHALT PAVEMENT
	1D	24"	17"	3.0'	6	4	3	2		BROWN GRAVELLY SAND, SOME SILT (FILL) ~LOOSE TO MEDIUM DENSE~
									4.0'	
	2D	24"	14"	5.0'	2	2	3	4		BROWN SILTY CLAY
	3D	24"	20"	7.0'	6	7	8	10	7.0'	~STIFF~
										BOTTOM OF EXPLORATION @ 7.0'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-9

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-10**
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/15/2008
DATE FINISH: 12/15/2008
ELEVATION: 81' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING
DRILLER: PETER MICHAUD

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	HSA	4 1/4" I.D.		
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.2'	TOPSOIL (FILL)
	1D	24"	10"	3.0'	2	2	2	2		GRAY SILTY CLAY, TRACE GRAVEL, TRACE GLASS (FILL) ~LOOSE~
	2D	24"	2"	5.0'	3	3	4	4	5.5'	
	3D	24"	22"	7.0'	4	4	5	8	7.0'	~STIFF~ BROWN SILTY CLAY
										BOTTOM OF EXPLORATION @ 7.0'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-10**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-11**
SHEET: 1 OF 1
PROJECT NO.: 07-1053.3
DATE START: 12/15/2008
DATE FINISH: 12/15/2008
ELEVATION: 81.5' +/-
SWC REP.: MPL

PROJECT / CLIENT: PROPOSED PHARMACY / THE RICHMOND COMPANY, INC.
LOCATION: ALLEN & WASHINGTON AVENUES, PORTLAND, ME
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: PETER MICHAUD

	TYPE	SIZE	HAMMER WT.	HAMMER FALL
CASING:	SSA	4 1/4" I.D.	-	
SAMPLER:	SS	1 3/8" I.D.	140 lbs	30"
CORE BARREL:	N/A			

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	ASPHALT PAVEMENT
									1.5'	BROWN GRAVELLY SAND, SOME SILT (FILL)
	1D	24"	19"	3.0'	6	5	5	6		BROWN SILTY CLAY
	2D	24"	24"	7.0'	3	6	8	11		~STIFF~
	3D	24"	20"	9.0'	7	10	11	12	9.0'	
										BOTTOM OF EXPLORATION @ 9.0'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-11**

KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - based on laboratory unconfined compressive test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. based on pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass. RQD is computed from recovered core samples.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight
f	-	fines content (percent by weight passing U.S. No. 200 Sieve)

Description of Proportions:

0 to 5% TRACE
5 to 12% SOME
12 to 35% "Y"
35+% AND

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

S.W.COLE ENGINEERING, INC.

Report of Gradation

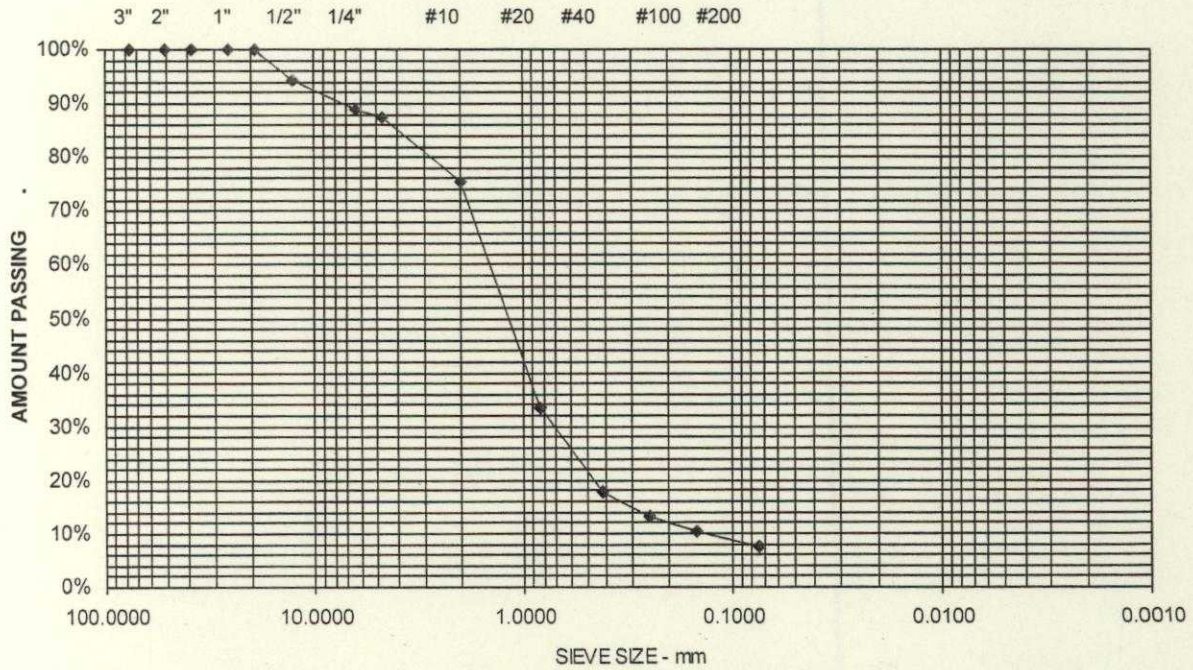
ASTM C-117 & C-136

Project Name: PORTLAND ME - PROPOSED WALGREENS - GEOTECHNICAL ENGINEERING SERVICES
Client: THE RICHMOND COMPANY, INC.
Material Source: B-3 1D 0.1-2.1

Project Number: 07-1053.3
Lab ID: 10009G
Date Received: 12/15/2008
Date Completed: 12/16/2008
Tested By: JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	94	
6.3 mm	1/4"	89	
4.75 mm	No. 4	87	12.6% Gravel
2.00 mm	No. 10	75	
850 um	No. 20	33	
425 um	No. 40	18	79.9% Sand
250 um	No. 60	13	
150 um	No. 100	10	
75 um	No. 200	7.4	7.4% Fines

GRAVELLY SAND, SOME SILT



Comments:

S.W.COLE ENGINEERING, INC.

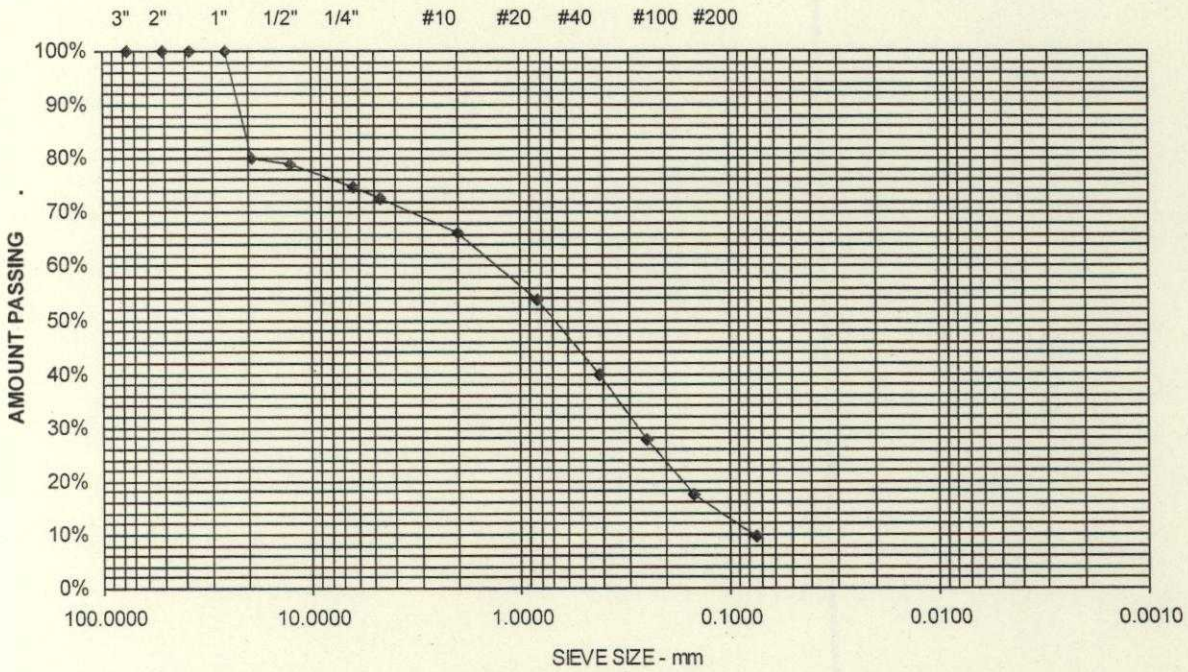
Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND ME - PROPOSED WALGREENS - GEOTECHNICAL ENGINEERING SERVICES	Project Number	07-1053.3
Client	THE RICHMOND COMPANY, INC.	Lab ID	10013G
		Date Received	12/15/2008
		Date Completed	12/16/2008
Material Source	**B-4 1D 0.1-2.1**	Tested By	JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	**6"**	**100**	
125 mm	**5"**	**100**	
100 mm	**4"**	**100**	
75 mm	**3"**	**100**	
50 mm	**2"**	**100**	
38.1 mm	**1-1/2"**	**100**	
25.0 mm	**1"**	**100**	
19.0 mm	**3/4"**	**80**	
12.5 mm	**1/2"**	**79**	
6.3 mm	**1/4"**	**75**	
4.75 mm	**No. 4**	**72**	27.5% Gravel
2.00 mm	**No. 10**	**66**	
850 um	**No. 20**	**54**	
425 um	**No. 40**	**40**	62.9% Sand
250 um	**No. 60**	**28**	
150 um	**No. 100**	**17**	
75 um	**No. 200**	**9.6**	9.6% Fines

GRAVELLY SAND, SOME SILT



Comments:

S.W.COLE ENGINEERING, INC.

Report of Gradation

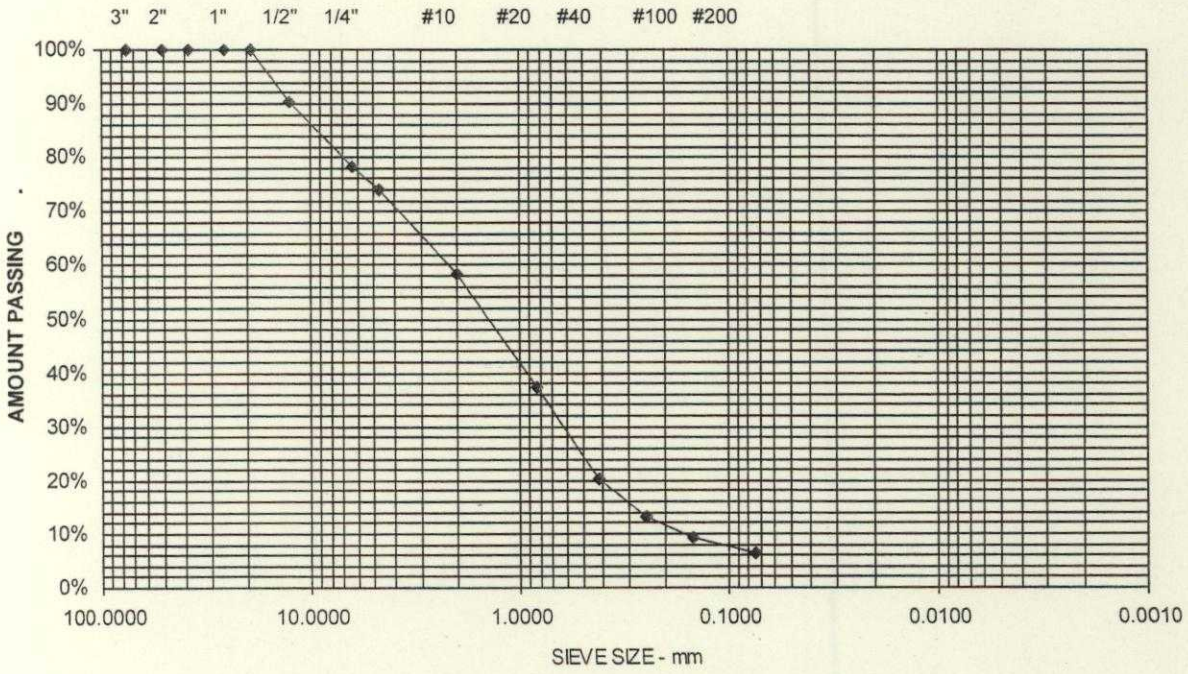
ASTM C-117 & C-136

Project Name: PORTLAND ME - PROPOSED WALGREENS - GEOTECHNICAL ENGINEERING SERVICES
Client: THE RICHMOND COMPANY, INC.
Material Source: **B-5 1D 0.1-2.1**

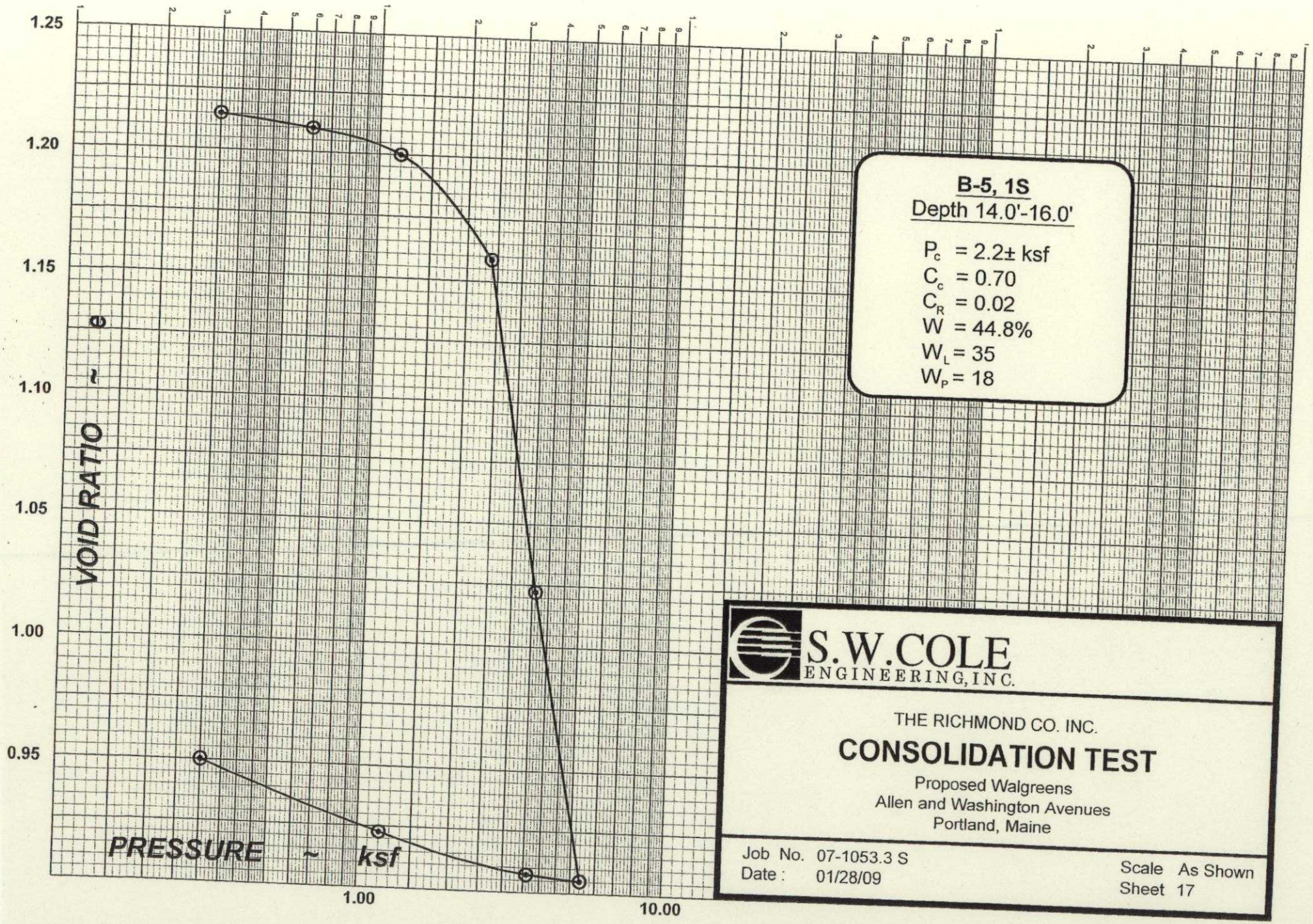
Project Number: 07-1053.3
Lab ID: 10014G
Date Received: 12/15/2008
Date Completed: 12/16/2008
Tested By: JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	90	
6.3 mm	1/4"	78	
4.75 mm	No. 4	74	26.2% Gravel
2.00 mm	No. 10	58	
850 um	No. 20	38	
425 um	No. 40	20	67.5% Sand
250 um	No. 60	13	
150 um	No. 100	9	
75 um	No. 200	6.3	6.3% Fines

GRAVELLY SAND, SOME SILT



Comments:



B-5, 1S
Depth 14.0'-16.0'

P_c = 2.2± ksf
C_c = 0.70
C_R = 0.02
W = 44.8%
W_L = 35
W_P = 18

S.W.COLE ENGINEERING, INC.

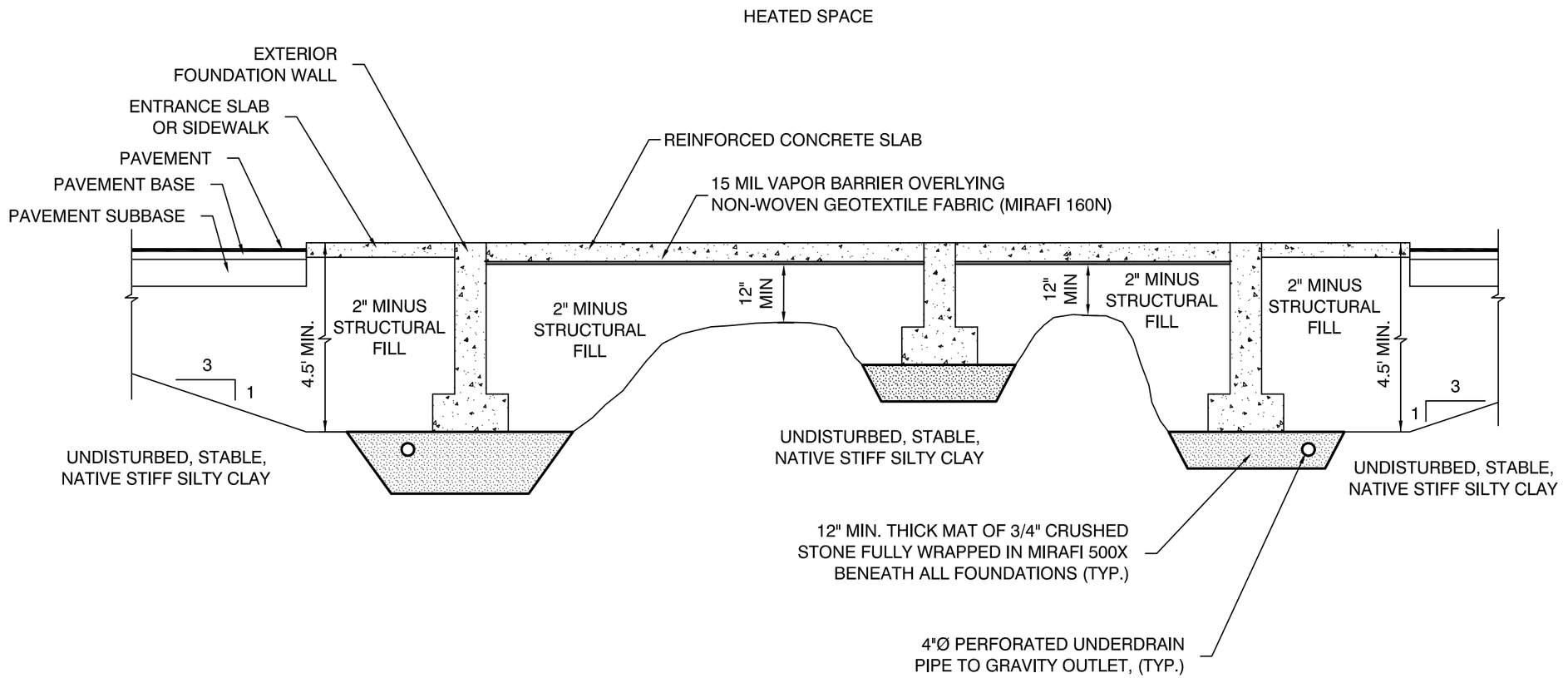
THE RICHMOND CO. INC.

CONSOLIDATION TEST

Proposed Walgreens
Allen and Washington Avenues
Portland, Maine

Job No. 07-1053.3 S
Date : 01/28/09

Scale As Shown
Sheet 17



NOTE:

1. UNDERDRAIN INSTALLATION AND MATERIAL GRADATION AND COMPACTION RECOMMENDATIONS ARE CONTAINED WITHIN THIS REPORT.
2. DETAIL IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT FOR CONSTRUCTION.
3. GEOTEXTILE FABRIC SUCH AS MIAFI 500X MAY BE NEEDED ON SOME SUBGRADE AREAS PRIOR TO PLACING NEW FILL.

S.W.COLE ENGINEERING, INC.

THE RICHMOND COMPANY

UNDERDRAIN AND FOUNDATION DETAIL

PROPOSED WALGREEN PHARMACY
ALLEN AVENUE AND WASHINGTON AVENUE
PORTLAND, MAINE

Job No.	07-1053.3	Scale	Not to Scale
Date :	01/16/09	Sheet	18